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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,938	10/31/2001	William B. Connors	10007153-1	4722

7590 07/28/2004

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EXAMINER	
NGUYEN, LAM S	

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,938	CONNORS ET AL.	
	Examiner	Art Unit	
	LAM S NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 13-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 13-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 21 and 26 recite the limitation "the non-metal layer".

Claim 31 recites the limitation "the power conducting portion".

There is insufficient antecedent basis for these limitations in the claims.

2. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites the limitation "metal layer" in "a corrosion barrier between metal layer and the power conducting portion". It is unclear that which metal layer, the top metal layer or the bottom metal layer, the claim refers to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-10, 13-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Kasamoto et al. (US 6056391) (The rejection referring to claim 18-19, 21, 26, and 31 are made with an assumption that the above limitations have been cited and disclose in the specification).

Kasamoto et al. disclose a printhead having a circuit with plural resistors and a power source, comprising:

a metal stack formed within the circuit and comprised of a first/bottom metal layer (FIG. 1c, element 1110c-b) comprising a power bus/conductive trace coupled to the power source (FIG. 1C: The layers 1110c-b are connected to a power source) and a second/top metal layer comprising a top conductive layer portion and a bottom layer portion(FIG. 1c, elements 1110a, 1103), wherein the bottom layer portion has a portion that comprises the resistors (FIG. 1c, element 1102) **(Referring to claims 20-21, 26, 31, 33, 36)**, and

at least one power via (FIG. 1c, element 1105) formed within the circuit as an interface between the first metal layer and the second metal layer, wherein, at the power via the second metal layer comprises a separation barrier located adjacent the first metal layer and between the at least one resistor of the plural resistors and the power bus, and wherein the second metal layer is connected to the first conductive metal layer portion at the plurality of electrical connection portions (FIG. 1c, element 1105: The portion of layer 1103 at area 1105) **(Referring to claims 1, 10, 15, 17, 20-23, 26-28, 31, 33, 35-38)**.

Referring to claims 2, 13, 36, 39: further comprising a controller/FET bus that is connected to the at least one resistor at a controller via (FIG. 1C: A corresponding connection connects the electrode 1110a to a power controller).

Referring to claims 3, 16, 24, 29, 34: wherein the circuit is a thin film circuit and the first metal layer is comprised of Aluminum Copper Silicon (column 5, lines 35-42: "Cu Al-Si alloy".

Referring to claims 6, 14, 19: wherein ink corrosion is terminated by the separation barrier at the power/controller via (column 2, lines 30-45).

Referring to claims 7-8, 26, 33: wherein the plural resistors comprise a set of resistors,

wherein for the set of resistors, power is routed from the power bus through a plurality of corresponding power/controller vias to each resistor of the set of resistors (FIG. 1c: The printhead has a plurality of resistors 1102, wherein each resistor 1102 is provided electrical energy through the connection of the electrodes 1110d and 1110a to a corresponding power/controller via).

Referring to claim 9: wherein each resistor of the plural resistors is associated with at least one power via that separates metal of the resistor from the power bus (FIG. 1C: The portion 1105 of the layer 1103 separates the metal layer 1110d to the layer 1110b-c).

Referring to claims 4-5, 16, 18, 25, 30, 34: wherein the second metal layer is comprised of Aluminum and at least one of Tantalum Aluminum, Tungsten Silicon Nitride, or Tantalum Nitride which provides corrosion resistance and connects the Aluminum to the power bus (column 9, lines 1-3), wherein a first portion of the Tantalum Aluminum comprises the corresponding at least one of the resistor and a second portion of the Tantalum Aluminum connects the corresponding at least one of the resistor to the power bus (FIG.1C).

Referring to claims 21, 26, 32: a non-metal portion/layer overlying the first metal layer and comprising a via (FIG. 1c, element 1112).

Response to Arguments

Applicant's arguments filed 04/29/2004 have been fully considered but they are not persuasive.

Regarding to the arguments referring to claims 1, 10, 17: The applicants argued that Kasamoto does not disclose "a bottom corrosion-resistant layer portion comprising a corrosion separation barrier between the resistor and the power bus at the at least one via". However, based

on the claim language, the above limitation is not contained in claims 1-2, 8.

The applicants also argued that Kasomoto does not disclose "connecting a power bus to the at least one thin film resistor with a power via" or "substantially preventing spreading of the ink corrosion for the thin film resistor to the power bus with a separation barrier portion of the power via". As discussed above, the power bus is connected to thin film resistor with a power via as shown in FIGs. 1C and 2B. In addition, Kasomoto's disclosure solves the problem of ink permeates through the step portion at vias and causes electric corrosion, resulting in the disconnection of the resistor" (column 2, lines 35-45). Therefore, the Kasamoto apparatus having the same structure with the claimed apparatus prevents the spreading of the ink corrosion.

In addition, the applicants argued that the cited prior art fails to disclose "a controller bus that is connected to the at least one resistor at a controller via". However, the applicants do not specify the structure of the controller via. Thus, the examiner considers it as a regular electrical connection between the resistor and a controller that inherently exists in the printhead.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LN
July 25, 2004

HAI PHAM
PRIMARY EXAMINER